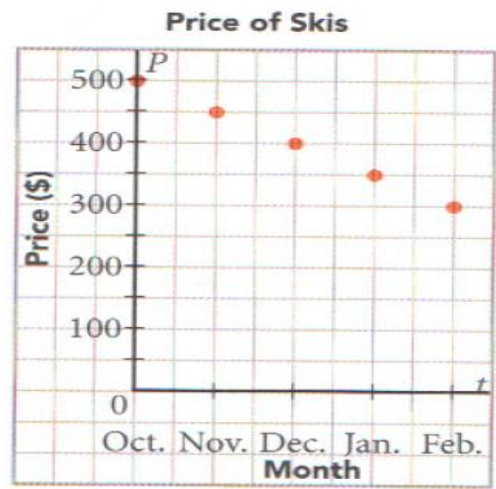


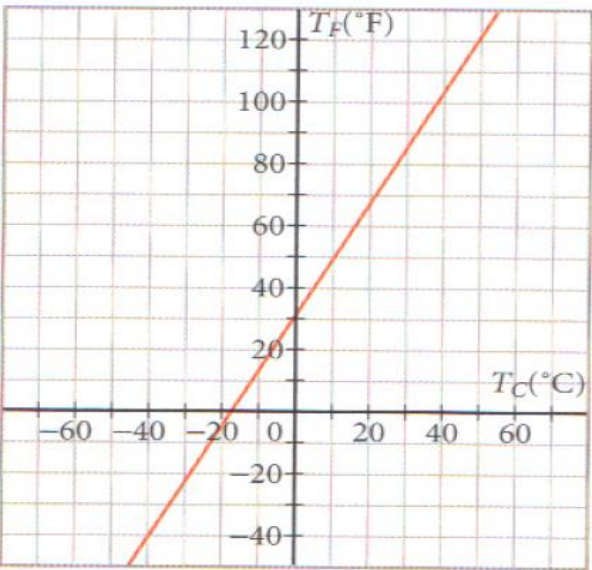
1. Jaime tracks the price of a set of skis over the winter. The changing price is shown in the graph.

- a. What was the price in October?
- b. What was the price in January?
- c. Determine the slope of the line.  
Include the units in your answer.  
How did you quantify the months?
- d. Write the equation of the line.
- e. When the price of the skis was \$250, Jaime asked her parents if she could buy them. When was the price \$250?



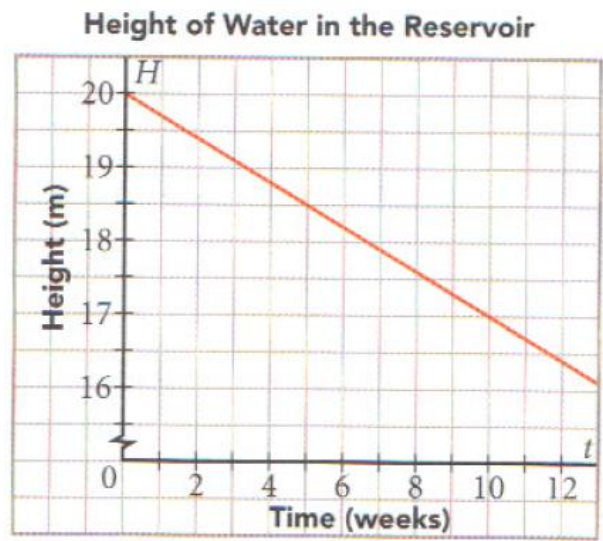
2. The graph shows how to convert temperatures in degrees Celsius,  $T_C$ , to temperature in degrees Fahrenheit,  $T_F$ .

- a. Convert  $0^{\circ}\text{C}$  to degrees F.
- b. Convert  $0^{\circ}\text{F}$  to degrees C.
- c. Write an equation for  $T_F$ .
- d. What is  $T_F$  when  $T_C = 200^{\circ}\text{C}$ ?
- e. What is  $T_C$  when  $T_F = -100^{\circ}\text{F}$ ?



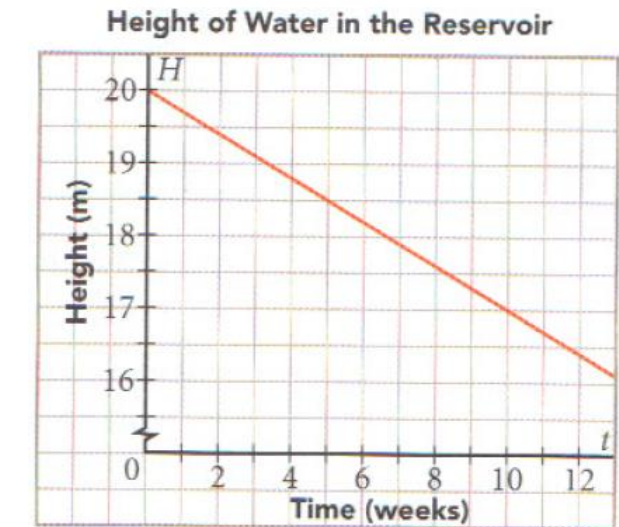
3. Many towns have reservoirs to store water for future use. The graph shows the height of water in one town's reservoir during a dry summer.

- a. What was the water level at the beginning of the summer?
- b. Determine the rate of fall of the water level.
- c. Write an equation to describe the water level over time.
- d. Is it reasonable to expect the water level to fall at a constant rate? Explain.

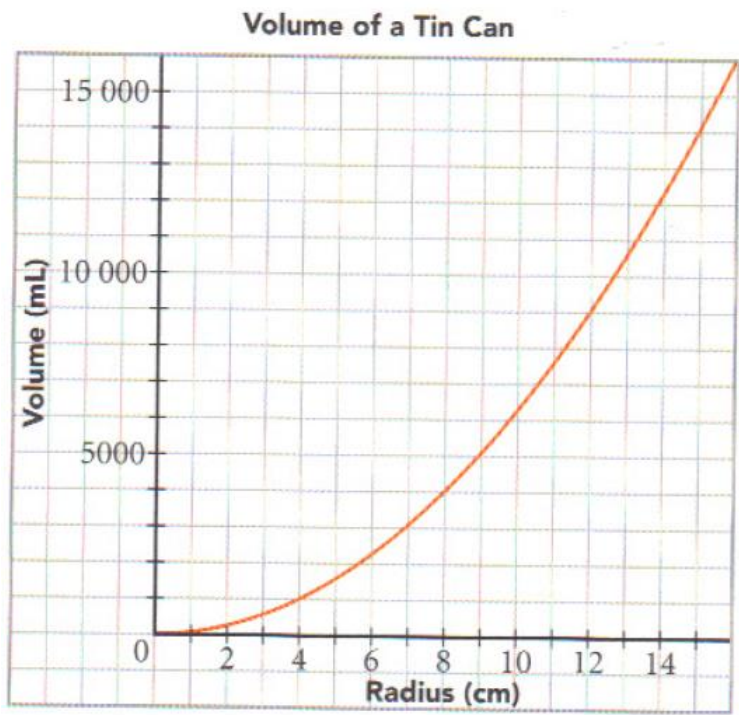


4. A car owner keeps a logbook of how much gasoline he uses and how far he drives between fill-ups. The information is shown on the graph.

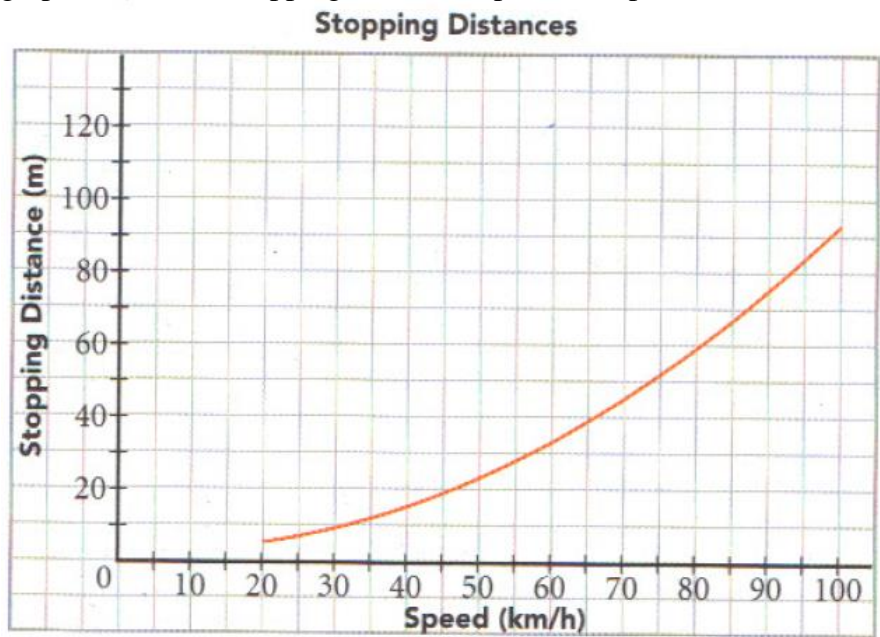
- a. How far can he drive on 20 L of gasoline?
- b. How much gasoline does he require to travel 450 km?
- c. Calculate the slope of the graph.  
What are the units?
- d. How many kilometers can he drive on 1 L of gasoline?
- e. Fuel consumption is expressed as liters per 100 km (L/100 km). What is the car's fuel consumption?



5. TinCanCo manufactures tin cans. One product line includes cans that are all 20 cm tall. The graph shows how the volume in milliliters depends on the radius in centimeters.



- a. What is the volume of a can with radius 4 cm?
  - b. What is the radius of a can with volume 2.50 L?
  - c. Create a table of values for radius (0,5,10,15,20,25 cm)
  - d. Determine if the graph is quadratic by calculating the first and second differences.
  - e. Predict the volume of a can with radius 40 cm. Explain your method.
6. A car traveling 50 km/h will stop in about 23 m. A car traveling 100 km/h will stop in about 93 m. The graph shows how stopping distance depends on speed.

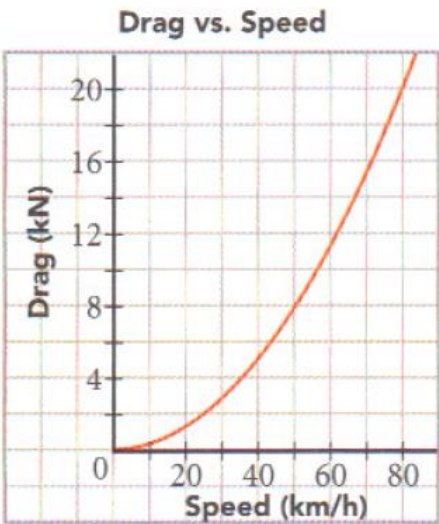


- a. Determine the stopping distances for speeds of 20 km/h and 30 km/h. What is the difference?
- b. Determine the stopping distances for speeds of 90 km/h and 100 km/h. What is the difference?
- c. From your own experience, explain why stopping distance increases as speed increases.
- d. According to the graph, what is the minimum stopping distance? Does this make sense? Explain.
- e. Estimate the stopping distance for a car traveling 110 km/h. Explain your method.



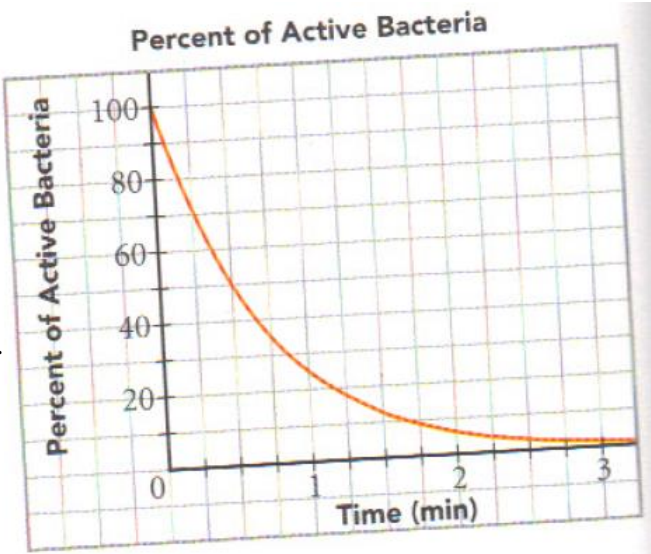
7. The amount of drag, or air resistance, on a moving car depends on many factors. One important factor is the speed of the car. The graph shows how the drag, in kiloNewtons, depends on the speed, in kilometers per hour.

- a. Determine the drag at each speed:
  - i. 20 km/h
  - ii. 40 km/h
  - iii. 60 km/h
  - iv. 80 km/h
- b. Is the graph quadratic? Explain.



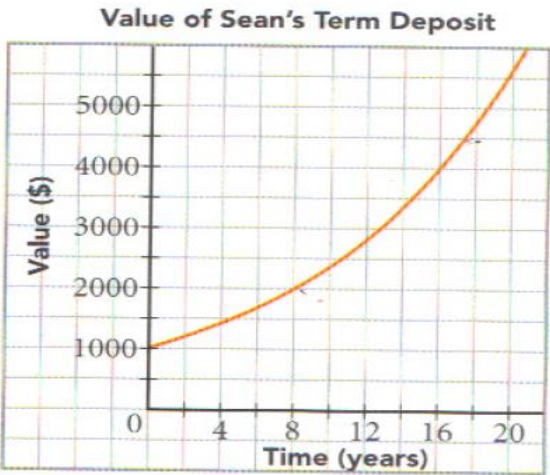
8. An antiseptic spray is used to clean the surfaces in a veterinary office. The percent of active bacteria is graphed over time.

- a. Explain the vertical scale.
- b. Determine the half-life of the bacteria.
- c. What is the rate of decrease of bacteria each minute?
- d. When is the level of active bacteria down to 5%.



9. Sean has purchased a term deposit that earns compound interest. The value of the term deposit over time is shown in the graph.

- a. How much money did Sean deposit?
- b. When will the term deposit be worth \$4500?
- c. Determine the doubling time for the deposit.
- d. What is the annual interest rate?



10. Many cancer treatment facilities are located near the atomic accelerator laboratories that manufacture the radioisotopes used in therapy. A 600 mg sample of an experimental isotope decays according to the graph.

- a. What is the half-life of the sample?
- b. How much of the sample is left after 3 h?
- c. Use your answers to parts a and b to explain why cancer treatment facilities are often located close to atomic accelerators.

